



COURSE OUTLINE

1. **Course:** PHYS 598A, Honours Research Thesis - Fall 2024

Coordinator(s)

Name	Email	Phone	Office	Hours
Professor Rachid Ouyed	rouyed@ucalgary.ca	403 690-8418	SB 515	TBA

Section(s)

Lab 01 :

Instructor	Email	Phone	Office	Hours
Dr. Javier Orlandi	javier.orlandi@ucalgary.ca	403 210-6548	SB 505	TBA
Dr. Matthew Taylor	matthew.taylor2@ucalgary.ca	contact via email only	SB 527	Tuesday 10:30-11:30am
Dr. Rene Plume	rplume@ucalgary.ca	contact via email	SB 517	N/A
Dr. Carlo Maria Scandolo	carlomaria.scandolo@ucalgary.ca	TBA	MS 320	
Dr. Emma Spanswick	elspansw@ucalgary.ca	403 220-6339	SB 636	T 9:00-10:00 or by appointment
Dr. Claudia Gomes da Rocha	claudia.gomesdarocho@ucalgary.ca	403 220-7023	SB 537	Tuesdays, 9 am - 10 am
Dr David Feder	dfeder@ucalgary.ca	403 220-3638	SB 535	Wednesdays 1400-1500
Dr Johnathan Burchill	j.burchill@ucalgary.ca	403 220-8108	SB 629	Office hours can be scheduled by emailing Johnathan Burchill at j.burchill@ucalgary.ca.
Timothy Friesen	TBA	TBA	TBA	TBA

PHYS 598 is meant for honours students, but students majoring in physics or astrophysics are permitted to take PHYS 598 in lieu of PHYS 599 if they prefer.

To account for any necessary transition to remote learning for the current semester, courses with in-person lectures, labs, or tutorials may be shifted to remote delivery for a certain period of time. In addition, adjustments may be made to the modality and format of assessments and deadlines, as well as to other course components and/or requirements, so that all coursework tasks are in line with the necessary and evolving health precautions for all involved (students and staff).

In Person Delivery Details:

Presentations will be delivered in-person.

Course Site:

D2L: PHYS 598A B01-(Fall 2024)-Honours Research Thesis

Note: Students must use their U of C account for all course correspondence.

Goal: The primary goal of this course is to develop your critical thinking and writing skills and deep understanding of the subject matter.

Project: Each student will be assigned a project in consultation with a supervisor. Written reports and oral presentations are required. Reports (PDF format) to be uploaded to a designated website.

Expectations: A student is expected to spend about 12 hours per week during the semester to complete course tasks.

First presentation: The oral presentation is **strictly** eight minutes (including 3 minutes for questions and comments). It should portray the topic of investigation and a brief background, motivation for the investigation, a brief literature survey, and an outline of the method of investigation.

Introductory report: The introductory report should include the topic of investigation and a brief background, motivation for the investigation, a brief literature survey, and an outline of the method of investigation. The report should be a maximum one page in length, not including references. It should be single spaced in 12-point font and must state both the student's and supervisor's names below the title. Use a preferred journal's style guide for reference.

Interim report: The interim report should summarize the project's progress to date. It is a maximum of two pages in length including germane figures and tables and references. It should be single spaced and in the same format as the introductory

report. It must be approved by the supervisor.

Final presentation: For PHYS 598, the final presentation is a **strictly** 20-minute oral presentation (including 5 minutes for questions and comments).

Final report: The final report should be in the style of a journal article with section headings. It can be up to 20 pages double spaced in length (10 pages in the case of PHYS 599), not including appendices or references. In order to achieve an excellent grade, PHYS 598 final reports must demonstrate a substantial effort in an original research or development project in the field of study.

Equity Diversity & Inclusion:

The University of Calgary is committed to creating an equitable, diverse and inclusive campus, and condemns harm and discrimination of any form. We value all persons regardless of their race, gender, ethnicity, age, LGBTQIA2S+ identity and expression, disability, religion, spirituality, and socioeconomic status. The Faculty of Science strives to extend these values in every aspect of our courses, research, and teachings to better promote academic excellence and foster belonging for all.

The Physics and Astronomy EDI Committee acknowledges there are persistent barriers that prevent such accessibility and hinder our progress towards EDI. Our representatives (faculty, postdocs, graduate and undergraduate students) are committed to addressing any concerns and work towards proactive solutions that enact necessary change within the department. To submit anonymous questions, comments or concerns regarding EDI related issues, please reach out to our Associate Head EDI, Claudia Gomes da Rocha (claudia.gomesdarocho@ucalgary.ca)

2. Requisites:

See section [3.5.C](#) in the Faculty of Science section of the online Calendar.

Prerequisite(s):

Physics 443 and 449 and 455 and consent of the Department.

3. Grading:

The University policy on grading and related matters is described in [F.1](#) and [F.2](#) of the online University Calendar.

In determining the overall grade in the course the following weights will be used:

Course Component	Weight	Due Date (duration for exams)	Modality for exams	Location for exams
First presentation ¹	5%	Oct 04 2024		
Introductory Report ²	5%	Oct 11 2024		
Interim report	15%	Dec 06 2024		
Final presentation	25%	Apr 04 2025		
Final report	50%	Apr 11 2025		

¹ Note: All dates above subject to change and to Departmental Approval. First and Final presentations will be scheduled between 8 a.m. and 5 p.m. on the days above. Students will be consulted by the instructor to find a time that works within their schedule on these days.

² Note: First and final reports due one week after the corresponding presentation. Late reports will be penalized 33.3% per calendar day.

Each piece of work (reports, assignments, quizzes, midterm exam(s) or final examination) submitted by the student will be assigned a grade. The student's grade for each component listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.

The conversion between a percentage grade and letter grade is as follows.

	A+	A	A-	B+	B	B-	C+	C	C-	D+	D
Minimum % Required	95 %	90 %	85 %	80%	75%	70 %	65 %	60%	55%	50 %	45 %

The University of Calgary offers a [flexible grade option](#). Credit Granted (CG) to support student's breadth of learning and student wellness. Faculty units may have additional requirements or restrictions for the use of the CG grade at the faculty, degree or program level. To see the full list of Faculty of Science courses where CG is not eligible, please visit the following website: <https://science.ucalgary.ca/current-students/undergraduate/program-advising/undergraduate-processes>

4. Missed Components Of Term Work:

Students who are absent from an in-course assessment or who miss a deadline to submit course work are responsible for understanding and following the recommended steps provided in this Course Outline, and in the event of unexpected circumstances, contacting their course instructor to determine the impact of the missed assessment. At the discretion of the

course instructor, alternative arrangements may be considered for missed components of term work, as described in Section [G2.3](#) Absence from In-Course Assessments of the Calendar. For additional information and resources on the steps you can take in the event of unexpected circumstances interrupting your studies, see the website link in [Section M.1](#) of the Calendar.

The course instructor may ask for supporting documentation to confirm an absence. For information on supporting documentation that you can provide, see [Section M.1](#) Supporting Documentation for Absences of the Calendar.

In the event that an alternative arrangement is denied by the course instructor, students can email science@ucalgary.ca to discuss the matter further with an Associate Dean.

First and final reports due one week after the corresponding presentation. Late reports will be penalized 33.3% per calendar day.

Students who are absent from an in-course assessment or who miss a deadline to submit course work are responsible for understanding and following the recommended steps provided in this Course Outline, and in the event of unexpected circumstances, contacting their course instructor to determine the impact of the missed assessment. At the discretion of the course instructor, alternative arrangements may be considered for missed components of term work, as described in Section [G2.3](#) Absence from In-Course Assessments of the Calendar. For additional information and resources on the steps you can take in the event of unexpected circumstances interrupting your studies, see the website link in [Section M.1](#) of the Calendar.

The course instructor may ask for supporting documentation to confirm an absence. For information on supporting documentation that you can provide, see [Section M.1](#) Supporting Documentation for Absences of the Calendar.

5. **Scheduled Out-of-Class Activities:**

There are no scheduled out of class activities for this course.

6. **Course Materials:**

Recommended Textbook(s):

Michael Alley Publisher, *The Craft of Scientific Writing (Third Edition)* : Springer.
Michael Alley, *The Craft of Scientific Presentations (Critical steps to succeed and critical errors to avoid)* : Springer.

In order to successfully engage in their learning experiences at the University of Calgary, students taking online, remote and blended courses are required to have reliable access to the following technology:

- A computer with a supported operating system, as well as the latest security, and malware updates;
- A current and updated web browser;
- Webcam/Camera (built-in or external);
- Microphone and speaker (built-in or external), or headset with microphone;
- Current antivirus and/or firewall software enabled;
- Stable internet connection.

For more information please refer to the UofC [ELearning](#) online website.

7. **Academic Assessment & Examination Policy:**

Please note that while resources like AI tools can aid in research and writing, the primary goal of this course is to develop your critical thinking and writing skills and deep understanding of the subject matter. Reports will be graded on criteria for originality, depth of analysis, critical thinking, and student's writing skills. Simply using AI to generate content without engaging with the material is not in line with the learning objectives of this course: (i) provide a brief explanation of how AI was used in your project in general and in the creation of the report in particular; (ii) clearly mark any sections of your report that have been generated or influenced by AI tools.

See also [Section G](#) of the Calendar, on Academic Assessments and Examinations.

8. **Approved Mandatory And Optional Course Supplemental Fees:**

There are no mandatory or optional course supplemental fees for this course.

9. Writing Across The Curriculum Statement:

Writing skills are not exclusive to English courses and, in fact, should cross all disciplines. The University supports the belief that throughout their University careers, students should be taught how to write well so that when they graduate their writing abilities will be far above the minimal standards required at entrance. Consistent with this belief, students are expected to do a substantial amount of writing in their University courses and, where appropriate, members of faculty can and should use writing and the grading thereof as a factor in the evaluation of student work. The services provided by the [Writing Support](#), part of the [Student Success Centre](#), can be utilized by all undergraduate and graduate students who feel they require further assistance. See also [Section E.2](#) of the University Calendar.

Please note that while resources like AI tools can aid in research and writing, the primary goal of this course is to develop your critical thinking and writing skills and deep understanding of the subject matter. Reports will be graded on criteria for originality, depth of analysis, critical thinking, and student's writing skills. Simply using AI to generate content without engaging with the material is not in line with the learning objectives of this course: (i) provide a brief explanation of how AI was used in your project in general and in the creation of the report in particular; (ii) clearly mark any sections of your report that have been generated or influenced by AI tools.

10. Human Studies Statement:

Students will not participate as subjects or researchers in human studies.

See also [Section E.5](#) of the University Calendar.

11. Reappraisal Of Grades:

A student wishing a reappraisal, should first attempt to review the graded work with the Course coordinator/instructor or department offering the course. Students with sufficient academic grounds may request a reappraisal. Non-academic grounds are not relevant for grade reappraisals. Students should be aware that the grade being reappraised may be raised, lowered or remain the same. See [Section I](#) of the University Calendar.

- a. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within **ten business days** of either being notified about the mark, or of the item's return to the class. If the student is not satisfied with the outcome, the student shall submit the **Reappraisal of Graded Term work form**, found on the [Grade Reappraisals & Appeals](#) web presence to the department in which the course is offered within 2 business days of receiving the decision from the instructor. The Department will arrange for a reappraisal of the work within the next ten business days. The reappraisal will only be considered if the student provides a detailed rationale that outlines where and for what reason an error is suspected. See [Sections I.1 and I.2](#) of the Calendar and <https://science.ucalgary.ca/current-students/undergraduate/program-advising/grade-reappraisals-and-appeals>
- b. **Final Exam:** student seeking a reappraisal of a final grade should first attempt to review the final grade with the department or faculty offering the course. After which, if the student wishes to initiate a formal grade reappraisal, they should refer to ucalgary.ca/registrar/student-centre/grades for more information. The student must indicate exactly what error was made in marking the final assessment and/or in computing the final grade. The reappraisal will only be considered if the student provides a detailed rationale that outlines where and for what reason an error is suspected. See [Section I.3](#) Reappraisal of Final Grades of the University Calendar.

12. Other Important Information For Students:

- a. **Wellness and Mental Health Resources** The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, [Mental Health Services Website](#)) and the Campus Mental Health Strategy website ([Mental Health](#)).
- b. **Student Wellness Services:** For more information, see their [website](#) or call [403-210-9355](tel:403-210-9355).
- c. **Student Success:** The Student Success Centre provides services and programs to ensure students can make the most of their time at the University of Calgary. Our advisors, learning support staff, and writing support staff assist students in enhancing their skills and achieving their academic goals. They provide tailored learning support and advising programs, as well as one-on-one services, free of charge to all undergraduate and graduate students. For more information visit: <https://www.ucalgary.ca/student-services/student-success>
- d. **Student Ombuds Office:** The Student Ombuds Office supports and provides a safe, neutral space for students. For more information, please visit www.ucalgary.ca/ombuds/ or email ombuds@ucalgary.ca
- e. **Student Union (SU) Information:** The SU Vice-President Academic can be reached at [\(403\) 220-3911](tel:403-220-3911) or suvpaca@ucalgary.ca; Information about the SU, including elected Faculty Representatives, can be found here: <https://www.su.ucalgary.ca>. Email your SU Science Reps: science1@su.ucalgary.ca, science2@su.ucalgary.ca, science3@su.ucalgary.ca.

f. Academic Accommodation Policy:

It is the student's responsibility to request academic accommodations according to the University policies and procedures listed below. The student accommodation policy can be found at: <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Accommodation-Policy.pdf>

Students needing an accommodation because of a disability or medical condition should communicate this need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities: <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Accommodation-for-Students-with-Disabilities-Procedure.pdf>.

Students needing an accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, by filling out the [Request for Accommodation in Academic Courses Form](#) and sending by email to science@ucalgary.ca preferably 10 business days before the due date of an assessment or scheduled absence.

- g. Academic Integrity and Misconduct:** Academic integrity is the foundation of the development and acquisition of knowledge and is based on values of honesty, trust, responsibility, and respect. We expect members of our community to act with integrity. Research integrity, ethics, and principles of conduct are key to academic integrity. Members of our campus community are required to abide by our institutional [Code of Conduct](#) and promote academic integrity in upholding the University of Calgary's reputation of excellence. Some examples of academic misconduct include but are not limited to: posting course material to online platforms or file sharing without the course instructor's consent; submitting or presenting work as if it were the student's own work; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; borrowing experimental values from others without the instructor's approval; falsification/fabrication of experimental values in a report. Please read the following to inform yourself more on academic integrity:

[Student Handbook on Academic Integrity](#)
[Student Academic Misconduct Policy](#) and [Procedure](#)
[Faculty of Science Academic Misconduct Process](#)
[Research Integrity Policy](#)

Additional information is available on the [Student Success Centre Academic Integrity page](#)

- h. Copyright Legislation:** All students are required to read the University of Calgary policy on Acceptable Use of Material Protected by Copyright ([ucalgary.ca/legal-services/university-policies-procedures/acceptable-use-material-protected-copyright-policy](https://www.ucalgary.ca/legal-services/university-policies-procedures/acceptable-use-material-protected-copyright-policy)) and requirements of the copyright act (laws-lois.justice.gc.ca/eng/acts/C-42/index.html) to ensure they are aware of the consequences of unauthorized sharing of course materials (including instructor notes, electronic versions of textbooks etc.). Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy.
- i. Copyright of Course Materials:** All course materials (including those posted on the course D2L site, a course website, or used in any teaching activity such as (but not limited to) examinations, quizzes, assignments, laboratory manuals, lecture slides or lecture materials and other course notes) are protected by law. These materials are for the sole use of students registered in this course and must not be redistributed. Sharing these materials with anyone else would be a breach of the terms and conditions governing student access to D2L, as well as a violation of the copyright in these materials, and may be pursued as a case of student academic or [non-academic misconduct](#), in addition to any other remedies available at law.
- j. Recording of Lecture:** Audio recording of lectures, other than where an audio recording is an accommodation, shall be permitted for individual private study only at the discretion of the instructor. For any other use, whether by duplication, transcription, publication, sale or transfer of recordings, written approval must be obtained from the instructor for the specific use proposed. Any use other than that described above constitutes academic misconduct and may result in suspension or expulsion. For more information, see [Section E.6](#) Recording of Lectures of the University Calendar.
- k. Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). Students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information, see [Legal Services](#) website.
- l. Surveys:** At the University of Calgary, feedback through the UCalgary Course Experience Survey provide valuable information to help instructors and programs evaluate the student experience. Your responses make a difference and facilitate instructors in improving the learning and teaching experience offered in our courses. For more information, please visit <https://www.ucalgary.ca/provost/teaching-learning/student-surveys>.
- m. Emergency Evacuation/Assembly Points:** Assembly points for emergencies have been identified across campus. Assembly points are designed to establish a location for information updates from the emergency responders to the evacuees; from the evacuated population to the emergency responders. For more information, see the University of Calgary's Emergency Management website: <https://www.ucalgary.ca/risk/emergency-management/evac-drills-assembly->

[points/assembly-points](#)

- n. **Safewalk:** Campus security will escort individuals, day or night, anywhere on campus (including McMahon Stadium, Health Sciences Centre, Student Family Housing, the Alberta Children's Hospital and the University LRT station). Call [403-220-5333](tel:403-220-5333) or visit <https://www.ucalgary.ca/security/safewalk>. Use any campus phone, emergency phone or the yellow phone located at most parking lot pay booths. Please ensure your personal safety by taking advantage of this service.
- o. **Campus Supports & Resources:** A link to required information that is not course-specific related to student wellness and safety resources, can be found on the Office of the Registrar's website: <https://www.ucalgary.ca/registrar/registration/course-outlines>

Course Outcomes:

- o Developed good generic research skills
- o Developed good project planning and project and time management skills
- o Acquired necessary skills to communicate scientific information verbally effectively
- o Acquired necessary skills to communicate written scientific information effectively
- o Acquired necessary ethical skills in ethical research
- o Acquired strong skills in interactions and presentations

Electronically Approved - Aug 30 2024 16:12

Department Approval